

HALO OBSERVATIONS AT YORK, N. Y.

By MILROY N. STEWART, Cooperative Observer.

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Table 1 is in continuation of a similar table in the REVIEW for September, 1915, 43:444. Nearly all the lunar halos have been observed between 8 p. m. and 11 p. m., with nearly full moon. This will account, at least in part, for the few observed during the summer months.

Since January 10, 1917, the angular measurements have been made with an anglemeter, a modified sextant with one mirror, or, on a few occasions, with a Hadley's reflecting quadrant. All observations with this latter instrument have been made at Rochester, N. Y., 26 miles north-northeast, and have been confined to phenomena other than the usual 22° halo. Twenty-two degree halos are nearly always visible simultaneously at York and Rochester, but the attending phenomena frequently differ. The two instruments are of about the same accuracy for this type of observations.

TABLE 1.—Number of halos observed at York, N. Y.

[Lat. 42° 52' 30" N., longitude 77° 53' W.]

A. SOLAR HALOS.

Year.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Year.
1909 to 1914, inclusive.....	24	27	36	24	27	22	21	18	24	26	15	14	278
1915.....	7	2	2	3	2	7	9	7	8	3	4	5	59
1916.....	10	7	11	9	9	7	7	7	4	2	5	8	91
1917.....	6	8	8	9	6	11	7	7	4	7	3	7	83
Totals.....	47	44	57	44	44	47	44	39	40	44	27	34	511
Means.....	5.2	4.9	6.3	4.9	4.9	5.2	4.9	4.3	4.4	4.9	3.0	3.8	57
Smoothed means.....	4.8	5.3	5.6	5.2	5.0	5.0	4.8	4.5	4.2	4.3	3.7	3.9

B. LUNAR HALOS.

Year.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Year.
1909 to 1914, inclusive.....	8	5	7	3	5	1	1	1	1	4	9	10	57
1915.....	1	0	2	1	1	0	0	1	3	1	3	4	15
1916.....	4	2	1	1	2	0	0	0	0	0	1	0	11
1917.....	1	1	2	1	0	0	0	2	0	0	1	4	12
Sums.....	14	8	12	6	8	1	1	4	4	5	14	18	95
Means.....	1.6	0.9	1.3	0.7	0.9	0.1	0.1	0.4	0.4	0.5	1.6	2.0	10.5
Smoothed means.....	1.5	1.2	1.0	0.9	0.6	0.3	0.2	0.3	0.4	0.8	1.0	1.8

During 1916 and 1917, 88 per cent of all solar halos observed were followed by precipitation within 60 hours. The average interval has been as follows:

	Hours.
1909 to 1915, inclusive.....	20.4
1916.....	20.5
1917.....	20.8
1909 to 1917, inclusive.....	20.45

For lunar halos from 1909 to 1917, inclusive, the average interval has been 16.1 hours.

Aside from the common 22° halo the following phenomena have been observed within the past two years:¹

1916.

Nov. 11. 3:10 p. m. Circumzenithal arc.

1917.

- Jan. 8. 6:50 a. m. South paraselene. Showed red and green. Measured 22° 20' to red. Vertical light pillar upward from moon at same time.
- Mar. 21. 4:45 p. m. Circumzenithal arc. 26° from top of 22° halo to middle of spectrum.
- Apr. 8. Circumzenithal halo of the 22° halo. South parhelia, part of parhelic circle, and right infralateral tangent arc of the 46° halo. (See MONTHLY WEATHER REVIEW, May, 1917, 45:207.)
- June 25. 5:35 p. m. Circumzenithal arc. About a quadrant visible. Lasted 5 minutes. 46° from sun.
- Aug. 13. 7:00 a. m. Circumzenithal arc. 48.5° from sun; measured between red and green.
- Aug. 25. 9:35 a. m. Upper tangent arc of 22° halo.
- Nov. 25. 3:00 p. m. Halo having horizontal radius of 23° 20' by sextant measurement. Vertical radius was less—about 22°.
- Nov. 27. 2:45 p. m. Top of 22° halo; circumzenithal arc; and arcs of the 46° halo (?) which were at about the same height above horizon as was the top of the 22° halo. Spectrum colors showed faintly in the northerly arc. At 3 p. m. the solar distance of the top (blue) line of the circumzenithal arc was 47° 40'.

¹ For the early part of 1916 see the REVIEW for September, 1916, 43:445.